



Safety Alert

From the International Association of Drilling Contractors

ALERT 08 – 14

MUD PUMP MAINTENANCE RESULTS IN SERIOUS INJURY

WHAT HAPPENED:

The swab in the #1 mud pump needed changing so Pump #1 was shut down and the #2 pump was placed in service. A lock was placed on the #1 pump circuit breaker. No other Lockout/Tagout (LOTO) requirements were performed. The crew changed the swab on the pump and the derrickman was tightening nuts on the rod clamp and hooking up the liner washer. The motorman called the driller telling him all they had left to do was rig up the liner washer and then went into the SCR house and removed the LOTO lock from the breaker panel. He went back to the mud house and called the driller telling him to "go ahead". The driller turned the potentiometer on his control panel to prime the pump while the derrickman was still working on the pump. As a result the derrickman's lower leg was caught between the rod clamp and mud pump when the pump was powered up and his lower leg was seriously injured

WHAT CAUSED IT:

1. The crew did not follow the company's Lockout/Tagout Procedure:
 - a. The required Lockout/Tagout form was not completed or followed for the job.
 - b. All sources of energy were not locked out.
 - c. Work area was not inspected prior to removal of LOTO.
 - d. All employees were not notified prior to removal of LOTO.
 - e. Communications between the driller and the motorman were unspecific. The motorman informed the driller to "go ahead" instead of "shut down pump #2".
 - f. The crew working on pump #1 was not aware the driller had already shut down the #2 pump and was preparing to start up pump #1.
 - g. The lock on the #1 pump circuit breaker was removed while the pump was still being worked on. The company's Lockout/Tagout Procedure, including the LOTO Verification Form, **MUST** be followed and used as a step-by-step guide for isolating equipment prior to initiating work.
2. A pre-job meeting was not held to plan the work.
3. A JSA was not written or reviewed prior to initiating the job.
4. The crew left the control switch for the blower on the pump traction motor in the **Manual** position. This results in the blower continuing to run after the pump is shut down. Putting this switch in the **Automatic** position will shut down the blower along with the pump. The noise created by starting the blower is a good clue that a pump has power or is running.

CORRECTIVE ACTIONS: To address this incident, this company did the following:

1. Rig managers, drillers, superintendents, and safety managers should increase the monitoring, supervision, and training for LOTO on a daily basis for all rigs.
2. Utilize a pre-job meeting to ensure that all personnel are aware of the hazards of the task at hand. All communication on the rig needs to be specific for what is to be done. Examples include: "shut down pump 2"; "pump is unlocked and ready" or "don't put your fingers on top of the tong handles" as opposed to "go ahead".
3. Write and utilize a JSA prior to starting the job.
4. Make certain all appropriate mud pump equipment is shut down when repairing or doing maintenance on pumps. This includes the centrifugal pump(s), liner washer, traction motor blower. Many of these are currently hooked up to be on when the pump is turned on and some can be overridden with a manual control. These other pieces of equipment might also require LOTO. Install lockout devices on gate valves and butterfly valves as a secondary lock out measure to control any unforeseen release of energized fluid. Examples include the 4" mud line valve, tank suction valve would be locked in closed position and the 2" bleed off valve would be locked in the open position.

IADC Note: Refer to Section 3.1 of the IADC HSE Reference Guide for additional information on LOTO and/or IADC Safety Meeting Topic Book topic on Lockout/Tagout

The Corrective Actions stated in this alert are one company's attempts to address the incident, and do not necessarily reflect the position of IADC or the IADC HSE Committee.

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